



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/686,704

10/17/2003

Hisaki Kurashina

117086

8807

25944

7590

02/10/2005

OLIFF & BERRIDGE, PLC
P.O. BOX 19928
ALEXANDRIA, VA 22320

EXAMINER

NGUYEN, THANH NHAN P

ART UNIT

PAPER NUMBER

2871

DATE MAILED: 02/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/686,704	Applicant(s) KURASHINA ET AL.	
	Examiner (Nancy) Thanh-Nhan P Nguyen	Art Unit 2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 10 and 14 is/are allowed.
- 6) ☒ Claim(s) 1-9, 11-13, 15 and 16 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>10/17/2003</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

Claim 12 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Referring to claim 12, the language "the data lines including main line portions which extend above the scanning lines so as to intersect the scanning lines and overhanging portions which overhang from the main line portions along the scanning lines," and "convex portions being formed in regions which are to be gaps between the pixel electrodes adjacent to each other by interposing the scanning lines in plan view due to the presence of the overhanging portions on the base surfaces of the pixel electrodes on the substrate." is indefinite as the meaning is not understood. What constitutes overhanging portion cannot be determined as what is overhung is not identified, and what constitutes a convex portion cannot be determined as what layer or layers the convex portion is in is not identified. Therefore, for the examination purpose, that limitation has been assumed to mean that there are pixels.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3, 6-8, 11, and 15-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Yasukawa et al U.S. Patent No. 6,768,522.

Referring to claim 1, Yasukawa et al discloses an electro-optical device comprising, above a substrate (10): a data line (6a) extending in a first direction; a scanning line (3a) extending in a second direction and intersecting the data line; a pixel electrode (9a) and thin film transistor (TFT 30) disposed so as to correspond to an intersection region of the data line and the scanning line; a storage capacitor (70) electrically connected to the thin film transistor and the pixel electrode; a shielding layer (401) disposed between the data line and the pixel electrode; an interlayer insulating film (44) disposed as the base of the pixel electrode; and a contact hole (85) formed in the interlayer insulating film, to electrically connect the thin film transistor to the pixel electrode, the entire region inside the contact holes being filled with a filler, [see figs. 1 and 19].

Art Unit: 2871

Referring to claim 3, Yasukawa et al discloses another contact hole (83) being formed in another interlayer insulating film (41), and the entire region inside the other contact hole being filled with the filler, [see fig. 19].

Referring to claims 6 and 7, Yasukawa et al discloses a coating member (403) being formed on the inner surface of the contact hole, and the filler being formed on the coating member, where the filler being made of a polyimide material, [see col. 23, lines 9-11; col. 24, lines 6-7; and fig. 19].

Referring to claim 8, Yasukawa et al discloses the contact hole being formed in light-shielding regions corresponding to a position in which the scanning line and the data line is formed, [see fig. 19].

Referring to claim 11, Yasukawa et al discloses a relay layer (71) being electrically connected between one of the pair of electrodes constituting the storage capacitor and the pixel electrode.

Claim 15 is met the discussion regarding claim 1 rejection above.

Claim 16 is met the discussion regarding claim 1 rejection above, and also see fig. 27.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2, 4-5, 9, and 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yasukawa et al in view of Zhang et al U.S. Patent No. 6,396,470, and further in view of Matsushima U.S. Patent No. 6,806,932.

Referring to claim 2, Yasukawa et al lacks disclosure of the surface of the interlayer insulating film being planarized. However, it was well known to have the surface of the interlayer insulating film being planarized for the benefit of flattening or leveling the substrate, as evidenced by Zhang et al U.S. Patent No. 6,396,470, [see fig. 16], or by Matsushima U.S. Patent No. 6,806,932, [see fig. 2]. Therefore, at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to have the surface of the interlayer insulating film being planarized for the benefit of flattening or leveling the substrate.

Referring to claims 4 and 5, Yasukawa et al lacks disclosure of the filler being made of a light-shielding material, and a transparent conductive material respectively.

It was well known that filling the contact hole(s) with a conductive member so as to electrically connect predetermined ones of the electrodes each other via

Art Unit: 2871

the conductive member, and also, by filing the contact hole(s), the orientation of the liquid crystal molecules do not disturb at an area corresponding to contact hole(s). And it was evidenced by Matsushima, the filler (26) being made of a light-shielding material (Ti), [see fig. 2]; it was also evidenced by Zhang et al, the filler being made of a transparent conductive material (ITO), [see fig. 16]. Therefore, at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to have contact hole(s) being filler with a light-shielding material, or with a transparent conductive material for the benefit of having electrically connect predetermined ones of the electrodes each other via the conductive member, and not having the orientation of the liquid crystal molecules disturbed.

Referring to claim 9, Yasukawa et al lacks disclosure of the data line being formed of the same film as one of a pair of electrodes constituting the storage capacitor.

It was well known to form the data line with the same film as one of a pair of electrodes constituting the storage capacitor for the benefit of being convenient for manufacturing, saving time, and therefore, having product yield. Therefore, at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to form the data line with the same film as one of a pair of electrodes constituting the storage capacitor for the benefit of having product yield.

Referring to claim 12, Yasukawa et al discloses the data lines including main line portions which extend above the scanning lines so as to intersect the scanning lines; a counter electrode (21) facing the plurality of pixel electrodes (9a) being formed on a counter substrate (20) disposed to face the substrate; convex portions being formed in regions which are to be gaps between the pixel electrodes, [see figs. 2 and 19].

Yasukawa et al lacks disclosure of a first pixel electrode group inversely driven in a first period and a second pixel electrode group inversely driven in a second period complementary to the first period. However, it was an intended use limitation, and it was so very well known that it could be always found in "Driving means integral to substrate" of class 345, subclass 80, and therefore does not patentably distinguish the invention.

Referring to claim 13, since claim 13 is a product-by-process claim, determination of patentability is based on the product itself; the patentability of the product does not depend on its method of production, [see MPEP 2113]. Therefore, claim 13 is met the discussion regarding claim 12 rejection above .

Allowable Subject Matter

Claims 10 and 14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Art Unit: 2871

The following is a statement of reasons for the indication of allowable subject matter: None of prior art taught or disclosed the data line being a laminated structure of an aluminum film and a conductive polysilicon film; dielectric film (which constitutes the storage capacitor) including a plurality of layers including different materials.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Yasukawa et al U.S. Patent No. 6,768,522 discloses an electro-optical device comprising a shielding layer disposed between the data line and the pixel electrode; the entire region inside the contact hole(s) being filled with a filler.

Zhang et al U.S. Patent No. 6,396,470 discloses the insulating film having surface planarized, and the filler being made of a transparent conductive material (ITO).

Matsushima U.S. Patent No. 6,806,932 discloses the filler being made of a light-shielding material (Ti).

Art Unit: 2871

Any inquiry concerning this communication or earlier communications from the examiner should be directed to (Nancy) Thanh-Nhan P Nguyen whose telephone number is 571-272-1673. The examiner can normally be reached on M-F/9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on 571-272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

February 2, 2005

TN


KENNETH PARKER
PRIMARY EXAMINER